CITY OF GOODING (PWS 5240009)
SOURCE WATER ASSESSMENT FINAL REPORT

June 17, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area, sensitivity factors associated with the wells, and aquifer characteristics.

This report, *Source Water Assessment for the City of Gooding, Gooding, Idaho,* describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, i.e. nitrates, arsenic), volatile organic contaminants (VOCs, i.e. petroleum products), synthetic organic contaminants (SOCs, i.e. pesticides), and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

The City of Gooding (PWS 5240009) drinking water system consists of three ground water well sources. The well at 13th Avenue and Nevada Street has a moderate susceptibility to IOCs, VOCs, and microbial contaminants and has a high susceptibility to SOCs. The well on Senior Avenue has a moderate susceptibility to IOCs and microbial contaminants and has a high susceptibility to VOCs and SOCs. The well at 4th Avenue and Washington Street has a high susceptibility to all potential contaminant categories (Table 5). The high susceptibility of the 4th Avenue Well can be attributed, for the most part, to the high system construction rating, as well as the predominant irrigated agricultural land within the 3-year time-of-travel (TOT) zone of the delineation. A detection of di(2-ethylhexyl)-phthalate in August 2000 gave an automatic high susceptibility rating to SOCs for the Senior Avenue Well. The high SOC susceptibility of the 13th Avenue Well and the high VOC susceptibility of the Senior Avenue Well can be attributed to the large number of sources in the 3-year TOT of the delineations as well as the area being rated as a priority area for the pesticide atrazine.

The most significant water chemistry issue for the wells of the City of Gooding pertain to the detection of the SOC di(2-ethylhexyl)-phthalate in the Senior Avenue Well. In August 2000, di(2-ethylhexyl)-phthalate was detected at the Senior Avenue Well during a water chemistry test. However, repeat samples showed no further detection of the chemical in any of the wells.

Other IOCs detected in the water system include arsenic, barium, cadmium, chromium, fluoride, mercury, nickel, lead, iron, selenium, and zinc. All of these IOCs were detected at levels far below the maximum contaminant levels (MCLs). Nitrate has been detected in all three wells at levels consistently below 3 milligrams per liter (mg/L). The MCL for nitrate is 10 mg/L. Total coliform bacteria were detected in the distribution system in August 1994. No VOCs have been detected in the water system thus far. The delineations of the wells cross a priority area for the pesticide atrazine. Additionally, the county has been rated high for nitrogen fertilizer use and total agricultural chemical use.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the City of Gooding, drinking water protection activities should first focus on maintaining the requirements of the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity) including protection of the wells from surface flooding. Any spills from the potential contaminant sources listed in Tables 1, 2, and 3 in Appendix A of this report should be carefully monitored, as should any future development in the delineated areas. Other practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas should be implemented. Engineering controls may need to be implemented if any further SOC detection occurs. Also, disinfection practices should be maintained if microbial contamination becomes a problem. No chemicals should be stored or applied within the 50-foot radius of the wellhead. Most of the designated areas are outside the direct jurisdiction of the City of Gooding, making partnerships with state and local agencies and industry groups critical to success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near urban and residential land use areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. There are major transportation corridors through the delineations; therefore, the State Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR THE CITY OF GOODING, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the rankings of this assessment mean.** Maps showing the delineated source water assessment areas and the inventory of significant potential sources of contamination identified within those areas are attached. The lists of significant potential contaminant source categories and their rankings, used to develop this assessment, are also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the EPA to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of this assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The DEQ recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The City of Gooding drinking water system includes three community wells that serve a population of 3,200 people through 1,400 connections. All of the wells are located within the City of Gooding (Figure 1). The 13th Street Well is located at the corner of 13th Avenue and Nevada Street approximately one-fourth of a mile west of Highway 46 (Main Street). The Senior Avenue Well is located near Gibbons School on the corner of Senior Avenue and Nevada Street approximately one-fourth of a mile west of Highway 46. The Little Wood River passes within 200 feet of this wellhead. The 4th Avenue Well is located at the corner of 4th Avenue and Washington Street approximately 250 feet east of Highway 46.

According to the 1995 sanitary survey (that only includes the 13th Avenue Well and the Senior Well), water storage is provided by two water reservoirs: a 50,000-gallon above ground tank at Senior Avenue and a 1,400,000-gallon glass-lined above ground tank at Washington Street. The 50,000-gallon storage reservoir supplies water to the distribution system via a 60 horsepower pump. Presently, the drinking water system is disinfected by gaseous chlorine.

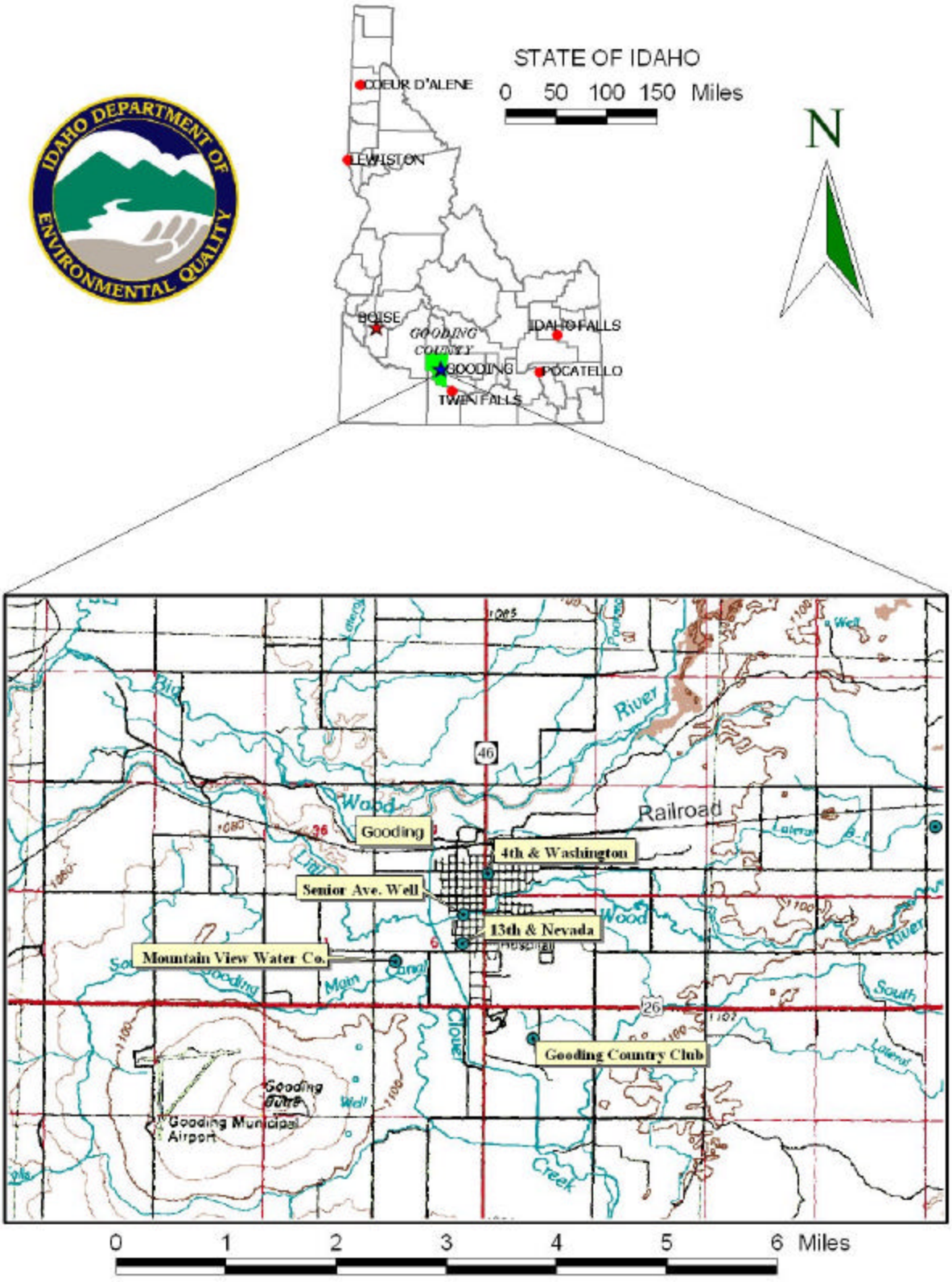
The most significant water chemistry issue for the wells of the City of Gooding pertain to the detection of the SOC di(2-ethylhexyl)-phthalate in the Senior Avenue Well. In August 2000, di(2-ethylhexyl)-phthalate was detected at the Senior Avenue Well during a water chemistry test. However, repeat samples showed no further detection of the chemical in any of the wells.

Other IOCs detected in the water system include arsenic, barium, cadmium, chromium, fluoride, mercury, nickel, lead, iron, selenium, and zinc. All of these IOCs were detected at levels far below the MCLs. Nitrate has been detected in all three wells at levels consistently below 3 mg/L. The MCL for nitrate is 10 mg/L. Total coliform bacteria were detected in the distribution system in August 1994 with no further detections. No VOCs have been detected in the water system thus far. The delineations of the wells cross a priority area for the pesticide atrazine. Additionally, the county has been rated high for nitrogen fertilizer use and total agricultural chemical use.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. Washington Group, International (WGI) used a refined computer model approved by the EPA in determining the time-of-travel (TOT) zones for water associated with the Southwest Eastern Snake River Plain (SW ESRP) aquifer. The computer model used site-specific data, assimilated by DEQ and WGI from a variety of sources including local area well logs and hydrogeologic reports summarized below.

FIGURE 1 - Geographic Location of the City of Gooding



The ESRP is a northeast trending basin located in southeastern Idaho. The 10,000 square miles of the plain are filled primarily with highly fractured layered Quaternary basalt flows of the Snake River Group, which are intercalated with sedimentary rocks along the margins (Garabedian, 1992, p. 5). Individual basalt flows range from 10 to 50 feet thick, averaging 20 to 25 feet thick (Lindholm, 1996, p. 14). Basalt is thickest in the central part of the eastern plain and thins toward the margins. Whitehead (1992, p. 9) estimates the total thickness of the flows to be as great as 5,000 feet. A thin layer (0 to 100 feet) of windblown and fluvial sediments overlies the basalt.

The layered basalts of the Snake River Group host one of the most productive aquifers in the United States. The aquifer is generally considered unconfined, yet may be confined locally because of interbedded clay and dense unfractured basalt (Whitehead, 1992, p. 26). Whitehead (1992, p. 22) reports that well yields of 2,000 to 3,000 gal/min are common for wells open to less than 100 feet of the aquifer. Lindholm (1996, p. 18) estimates aquifer thickness to range from 100 feet near the plain's margin to thousands of feet near the center. Models of the regional aquifer have used values ranging from 200 to 3,000 feet to represent aquifer thickness (Cosgrove et al., 1999, p. 15).

Regional ground-water flow is to the southwest paralleling the basin (Cosgrove et al., 1999; deSonneville, 1972, p. 78; Garabedian, 1992, p. 48; and Lindholm, 1996, p. 23). Reported water table gradients range from 3 to 100 ft/mile and average 12 ft/mile (Lindholm, 1996, p. 22). Gradients steepen at the plain's margin and at discharge locations.

The majority of aquifer recharge results from surface water irrigation activities (incidental recharge), which divert water from the Snake River and its tributaries (Ackerman, 1995, p. 4, and Garabedian, 1992, p. 11). Natural recharge occurs through stream losses, direct precipitation, and tributary basin underflow.

The Southwest Margin of the ESRP hydrologic province is the regional aquifer's primary discharge area. Interpretation of well logs indicates that a 1- to 23-foot-thick layer of sediment overlies the fractured basalt aquifer in Jerome County, and that an 8- to 410-foot-thick layer of sediment overlies the same aquifer in southern Minidoka and Power Counties. Published geologic maps of the Snake River Plain (Whitehead 1992, Plates 1 and 5) indicate there is 100 to 500 feet of Quaternary to Tertiary Basalt aged compacted to poorly consolidated sediments located in the Heyburn area (north of the Snake River near Burley). The saturated thickness of the regional basalt aquifer for the Southwest Margin is estimated to range from less than 500 feet near the Snake River to 1,500 feet near Minidoka.

A published water table map of the Kimberly to Bliss region of the aquifer (Moreland, 1976, p. 5) indicates that the ground-water flow direction in the Southwest Margin is similar to that depicted at the regional scale (e.g., Garabedian, 1992, Plate 4).

Annual average precipitation for the period 1951 to 1980 is 9.6 inches in both Twin Falls and Burley (Kjelstrom, 1995, p. 3). The estimated recharge from precipitation in the Southwest Margin ranges from less than 0.5 inch to more than 2 in./yr (Garabedian, 1992, p. 20). Kjelstrom (1995, p. 13) reports an annual river loss of 110,000 acre-feet to the aquifer for the 34.8-mile Minidoka-to-Milner reach of the Snake River. River gains of 210,000 acre-feet for the 21.5-mile Milner-to-Kimberly reach, and 880,000 acre-feet for the 20.4-mile Kimberly-to-Buhl reach are reported for the same period.

The delineated source water assessment areas for the three wells of the City of Gooding can best be described as wedge-shaped corridors extending approximately 8 miles to the northeast from the wellheads (Figure 2, Figure 3, and Figure 4 in Appendix A). The actual data used by WGI in determining the source water assessment delineation area is available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and the City of Gooding and from available databases.

The dominant land use outside the area of the City of Gooding is predominantly irrigated agriculture and rangeland. Land use within the immediate area of the wellhead consists of urban and residential property.

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both, to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A contaminant inventory of the study area was conducted in June and July of 2001. This involved identifying and documenting potential contaminant sources within the City of Gooding Source Water Assessment Areas through the use of computer databases and Geographic Information System maps developed by DEQ.

The delineation of the 13th Avenue Well contains 100 potential point sources (Figure 2, Table 1, Appendix A). The delineation of the Senior Avenue Well has 85 potential point sources (Figure 3, Table 2, Appendix A). The 4th Avenue Well delineation has 60 potential point sources (Figure 4, Table 3, Appendix A). These potential contaminant sources include some deep injection wells, a few dairies, several leaking underground storage tanks (LUST), underground storage tanks (USTs), sites that are regulated under the Resource Conservation and Recovery Act (RCRA), sites that are regulated under the Superfund Amendments and Reauthorization Act (SARA), a number of vehicle sales and repair businesses, and the Gooding National Guard area.

The GIS map shows that Highway 46 and the Union Pacific Railroad run through all of three delineations. These are major transportation corridors that can contaminate the aquifer in the event of an accidental spill or release. Additionally, the Little Wood River crosses the delineations in several places, passing within 200 feet of the Senior Avenue wellhead. This surface water can potentially contaminate the wells with surface runoff in the event of a spill or a flood.

Section 3. Susceptibility Analyses

Each well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix B contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

The hydrologic sensitivity was moderate for all three wells (see Table 5). This rating reflects the poor- to moderately drained nature of the soil of the region, which potentially decreases the downward movement of contaminants. However, the well logs for the 13th Avenue Well and the Senior Avenue Well indicate that the vadose zone is composed predominantly of fractured lava and gravel layers. At the 13th Avenue Well, first ground water was found between 157 feet and 160 feet below ground surface (bgs) and between 160 feet and 178 feet bgs for the Senior Avenue Well. The well log for the 4th Avenue Well was unavailable, preventing a determination of the composition of the vadose zone, the depth to first ground water or the presence of low permeable geologic units above the producing zone.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in Sanitary Surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

The 13th Avenue and Senior Avenue Wells of the City of Gooding have a moderate system construction score whereas the 4th Avenue Well has a high system construction score. The high system construction score for the 4th Avenue Well can be attributed to the absence of a sanitary survey that would have indicated the condition of the wellhead and surface seals and if the well was protected from surface flooding. The 1995 sanitary survey that includes the 13th Avenue and Senior Avenue Wells indicates that these wells are protected from surface flooding and that the wellhead and surface seals are maintained to standards. The following paragraphs describe the system construction information obtained from available well logs, the Source Water Assessment Program Public Water System Questionnaire, and the 1995 sanitary survey. Table 4 below also summarizes the well construction information of each well.

Completed in 1962 to a depth of 435 feet bgs, the 13th Avenue Well has a 16-inch diameter casing with 0.250-inch thickness set to a depth of 162 feet bgs into "gray lava." The annular seal was installed to the same depth of 162 feet bgs and the static water level is found at 150 feet bgs. The highest producing zone of the well appears to be just below the static water level between 157 feet and 435 feet bgs. The well is not screened.

The Senior Avenue Well was drilled in 1971 to a depth of 406 feet bgs. It has a 0.375-inch thick, 16-inch diameter casing set to a depth of 178 feet bgs into "hard grey lava." The annular seal was set also to a depth of 178 feet bgs and the static water level is found at 166 feet bgs. The highest producing zone of the well appears to be between 226 feet and 315 feet bgs. The well is not screened.

Though the well log was unavailable for the 4th Avenue Well, the Public Water Questionnaire provided some well construction information. The well was drilled in 1996 to a depth of 428 feet bgs. It has a 17-inch diameter casing set to a depth of 268 feet bgs and the static water depth is found at 154 feet bgs.

Table 4. City of Gooding Well Construction Summary Information

Well	Well Depth (ft)	Water Table Depth (ft)	Casing: diameter/ thickness (in)	Casing: depth (ft)/ formation	Surface seal: depth (ft)/ formation	Screened Interval (ft)	Drill Year	Sanitary Survey Elements (A/B)[1]
13th Avenue Well	435	150	16/0.250	162/grey lava	162/grey lava	None	1962	Yes/Yes
Senior Avenue Well	406	166	16/0.375	178/hard grey lava	178/hard grey lava	None	1971	Yes/Yes
4th Avenue Well	428	154	17/NI	268/NI	NI	NI	1996	NI/NI

[1] A = Well and surface seal in compliance; B = Protected from surface flooding
NI = no information was available

Though the wells of the City of Gooding may have met standards at the time of construction, current well construction standards are stricter. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all Public Water Systems (PWSs) to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the requirements include casing thickness, well tests, and depth and formation type that the surface seal must be installed into. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Twelve-inch

to 20-inch diameter wells require a casing thickness of at least 0.375 inches. Well tests are required at the design pumping rate for 24 hours or until stabilized drawdown has continued for at least six hours when pumping at 1.5 times the design pumping rate.

Potential Contaminant Source and Land Use

All of the wells rate high for IOCs (e.g. arsenic, nitrate), VOCs (e.g. petroleum products), and SOCs (e.g. pesticides), and moderate for microbial contaminants (e.g. bacteria). The number of potential contaminant sources as well as the pesticide priority area within the delineations contributed to the land use ratings for all of the wells. The transportation corridors and the Little Wood River also contributed to the ratings.

Final Susceptibility Rating

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well, no matter what the land use of the area is. This is because a pathway for contamination already exists. Additionally, the storage or application of any potential contaminants within 50 feet of the wellhead will automatically lead to a high score. In this case, the SOC di(2-ethylhexyl)-phthalate was detected at the Senior Avenue Well in August 2000, giving an automatic high susceptibility score to SOCs for that well. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time-of-travel zone (Zone 1B) and much agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, the 13th Avenue Well has a high susceptibility to SOCs and a moderate susceptibility to IOCs, VOCs, and microbial contaminants. The Senior Avenue Well has a high susceptibility to VOCs and SOCs and a moderate susceptibility to IOCs and microbial contaminants. The 4th Avenue Well has a high susceptibility to all potential contaminant categories.

Table 5. Summary of the City of Gooding Susceptibility Evaluation

Source	**Susceptibility Scores[1]**									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
13th Avenue Well	M	H	H	H	M	M	M	M	H	M
Senior Avenue Well	M	M	M	M	M	M	M	H	H(*)	M
4th Avenue Well	M	H	H	H	M	H	H	H	H	H

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
(*) = Automatic high susceptibility rating due to the detection of di(2-ethylhexyl)-phthalate and a high number of points

Susceptibility Summary

In terms of total susceptibility, the 13th Avenue Well has a high susceptibility to SOCs and a moderate susceptibility to IOCs, VOCs, and microbial contaminants. The Senior Avenue Well has a high susceptibility to VOCs and SOCs and a moderate susceptibility to IOCs and microbial contaminants. The 4th Avenue Well has a high susceptibility to all potential contaminant categories. The large number of potential contaminant sources that surround the wells as well as the pesticide priority area contributed to the high SOC susceptibility of the 13th Avenue Well and the high VOC susceptibility of the Senior Avenue Well. The Senior Avenue Well automatically rated high susceptibility to SOCs due to a detection of the SOC di(2-ethylhexyl)-phthalate in August 2000. The lack of a well log and a sanitary survey as well as the number of potential contaminant sources that surround the 4th Avenue Well contributed to its overall high susceptibility ratings (Table 5).

The most significant water chemistry issue for the wells of the City of Gooding pertain to the detection of the SOC di(2-ethylhexyl)-phthalate in the Senior Avenue Well. In August 2000, di(2-ethylhexyl)-phthalate was detected at the Senior Avenue Well during a water chemistry test. However, repeat samples showed no further detection of the chemical in any of the wells.

Other IOCs detected in the water system include arsenic, barium, cadmium, chromium, fluoride, mercury, nickel, lead, iron, selenium, and zinc. All of these IOCs were detected at levels far below the MCLs. Nitrate has been detected in all three wells at levels consistently below 3 mg/L. The MCL for nitrate is 10 mg/L. Total coliform bacteria were detected in the distribution system in August 1994. No VOCs have been detected in the water system thus far. The delineations of the wells cross a priority area for the pesticide atrazine. Additionally, the county has been rated high for nitrogen fertilizer use and total agricultural chemical use.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For the City of Gooding, drinking water protection activities should first focus on maintaining the requirements of the sanitary survey, including protection of the wells from surface flooding. Any spills from the potential contaminant sources listed in Tables 1, 2, and 3 in Appendix A of this report should be carefully monitored, as should any future development in the delineated areas. Other practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas should be implemented. Engineering controls may need to be implemented if any other SOC detection occurs. Also, disinfection practices should be maintained if microbial contamination becomes a problem. No chemicals should be stored or applied within the 50-foot radius of the wellhead. Most of the designated areas are outside the direct jurisdiction of the City of Gooding, making partnerships with state and local agencies and industry groups critical to success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near urban and residential land use areas. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. There are major transportation corridors that cross the delineations; therefore, the State Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

Assistance

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office	(208) 736-2190
State DEQ Office	(208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper, (mlharper@idahoruralwater.com) Idaho Rural Water Association, at (208) 343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

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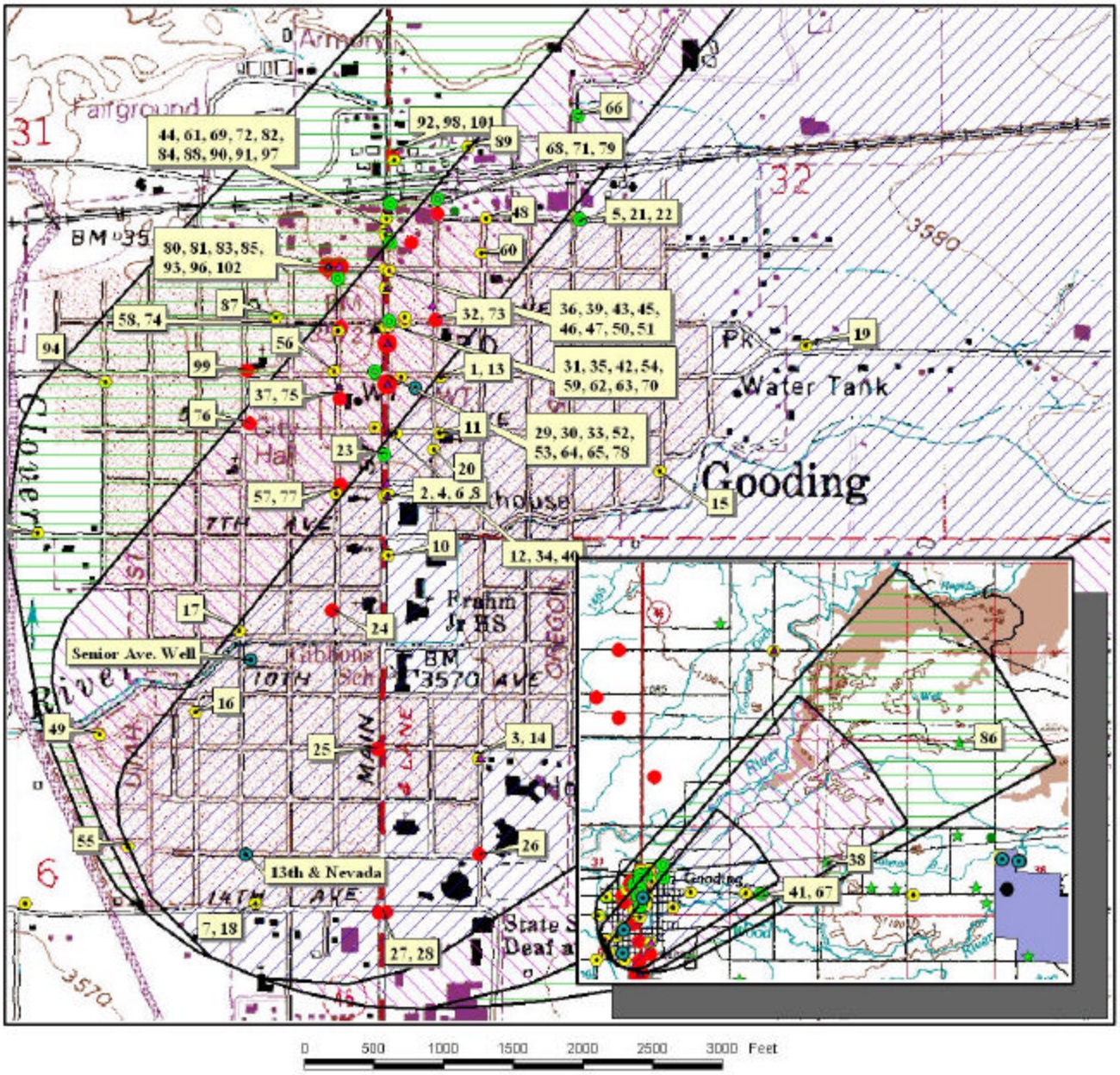
Appendix A

Maps of the Delineated Areas
Potential Contaminant Inventories

City of Gooding
Figure 2, Table 1
Figure 3, Table 2
Figure 4,Table 3

FIGURE 2 - City of Gooding Delineation Map and Potential Contaminant Source Locations



LEGEND

PCI IDTM
- 1B (1 yr TOT)
- 2 (5 yr TOT)
- 3 (10 yr TOT)
- Wellhead
- Enhanced Inventory
- CERCLIS Site
- RICRIS Site
- Dairy
- LUST Site
- Closed UST Site
- Open UST Site
- Business Mailing List
- NPDES Site
- Mine
- AST
- Toxic Release Inventory
- SARA Title III Site (EPCRA)
- Recharge Point
- Injection Well
- Group1 Site
- Cyanide Site
- Landfill
- Wastewater Land App Site

PWS# 5240009
13th & Nevada

Table 1. 13th Avenue Well. Potential Contaminant Inventory

SITE	Source Description[1]	TOT[2] ZONE	Source of Information	Potential Contaminants[3]
1, 13	UST-Open, Automobile Repairing & Service	0 – 3	Database Search	IOC, VOC, SOC
2	UST-Open	0 – 3	Database Search	VOC, SOC
3	UST-Open		Database Search	VOC, SOC
4, 6	UST-Closed, Fire Departments	0 – 3	Database Search	IOC, VOC, SOC
5, 22	UST-Closed, RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
7	Garbage Collection	0 – 3	Database Search	IOC, VOC, SOC, Microbes
8	Tire-Dealers-Retail	0 – 3	Database Search	VOC, SOC
9	Automobile Radiator-Repairing	0 – 3	Database Search	IOC, VOC, SOC
10	Funeral Directors	0 – 3	Database Search	IOC, SOC
11	Storage-Household & Commercial	0 – 3	Database Search	IOC, VOC, SOC
12	Hardware-Retail	0 – 3	Database Search	IOC, VOC, SOC
14	Hospitals	0 – 3	Database Search	IOC, SOC, Microbes
15	Farming Service	0 – 3	Database Search	IOC, VOC, SOC, Microbes
16	Automobile Radiator-Repairing	0 – 3	Database Search	IOC, VOC, SOC
17	Livestock-Dealers (Wholesale)	0 – 3	Database Search	IOC, Microbes
18	Toilets-Portable	0 – 3	Database Search	IOC, VOC, SOC, Microbes
19	General Contractors	0 – 3	Database Search	IOC, VOC, SOC
20	Automobile Repairing & Service	0 – 3	Database Search	IOC, VOC, SOC
21	Hay (Wholesale)	0 – 3	Database Search	IOC, VOC, SOC
23	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
24	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
25	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
26	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
27	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
28	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
29, 30, 33, 53	LUST-Site Cleanup Completed , Impact: Unknown, UST-Closed, State Government-National Security	3 – 6	Database Search	IOC, VOC, SOC
31, 35	LUST-Site Cleanup Completed , Impact: Unknown, UST-Closed	3 – 6	Database Search	VOC, SOC
32	UST-Open	3 – 6	Database Search	VOC, SOC
34	UST-Closed	3 – 6	Database Search	VOC, SOC
36, 43, 45, 51	UST-Closed, Veterinarians	3 – 6	Database Search	IOC, VOC, SOC
37	UST-Closed	3 – 6	Database Search	IOC, VOC, SOC
38	Dairy<=200 cows	3 – 6	Database Search	IOC, Microbes
39	Photographers-Portrait	3 – 6	Database Search	IOC, VOC
40	Grain-Dealers (Wholesale)	3 – 6	Database Search	IOC, SOC
41, 67	Trucking-Heavy Hauling, RCRA Site	3 – 6	Database Search	IOC, VOC, SOC
42	Tractor-Dealers (Wholesale)	3 – 6	Database Search	VOC, SOC
44, 69	Cleaners, RCRA Site	3 – 6	Database Search	VOC
46	Automobile Dealers-Used Cars	3 – 6	Database Search	VOC, SOC
47	Newspapers (Publishers)	3 – 6	Database Search	IOC, VOC
48	Fertilizers (Wholesale)	3 – 6	Database Search	IOC, SOC
49	Truck-Repairing & Service	3 – 6	Database Search	IOC, VOC, SOC
50	Motorcycles & Motor Scooters-Dealer	3 – 6	Database Search	VOC, SOC
52	Electric Companies	3 – 6	Database Search	IOC, VOC
54	Automobile Parts & Supplies-Retail	3 – 6	Database Search	VOC, SOC
55	Farming Service	3 – 6	Database Search	IOC, VOC, SOC
56	Mufflers & Exhaust Systems-Engine	3 – 6	Database Search	IOC, VOC, SOC
57	Printers	3 – 6	Database Search	IOC, VOC
58	Automobile Body-Repairing & Painting	3 – 6	Database Search	IOC, VOC, SOC
59	Demolition Contractors	3 – 6	Database Search	IOC, VOC, SOC
60	Machine Shops	3 – 6	Database Search	IOC, VOC, SOC
61	Lawn & Garden Equip & Supplies-Retail	3 – 6	Database Search	IOC, VOC, SOC
62	Commercial Printing NEC	3 – 6	Database Search	IOC, VOC
63	Automobile Parts & Supplies-Retail	3 – 6	Database Search	VOC, SOC
64	Automobile Parts & Supplies-Retail	3 – 6	Database Search	IOC, VOC, SOC
65	RCRA Site	3 – 6	Database Search	IOC, VOC, SOC
66	RCRA Site	3 – 6	Database Search	IOC, VOC, SOC
68, 79	RCRA Site, SARA	3 – 6	Database Search	IOC, VOC, SOC
70	RCRA Site	3 – 6	Database Search	IOC, VOC, SOC

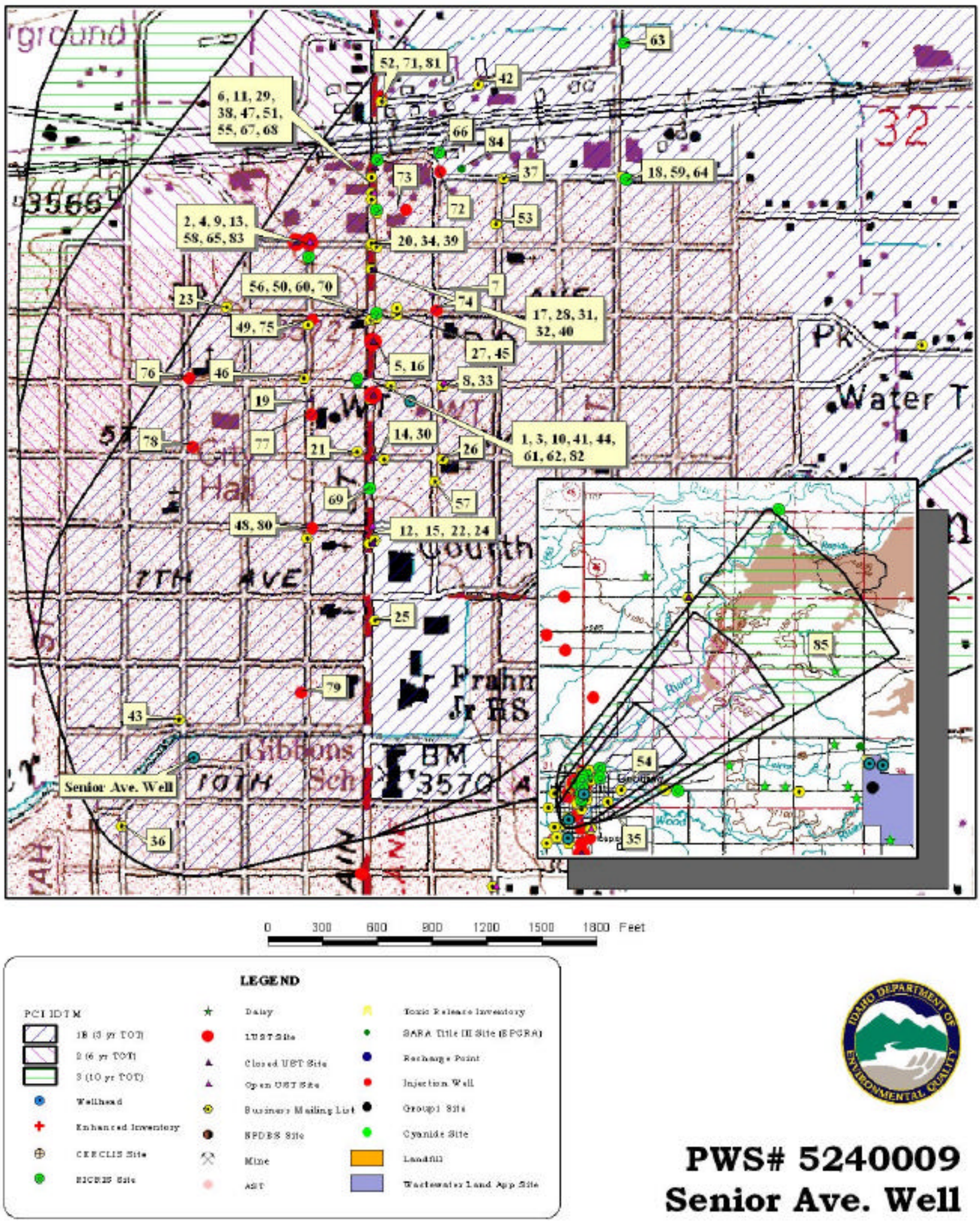
SITE	Source Description[1]	TOT[2] ZONE	Source of Information	Potential Contaminants [3]
71	Deep Injection Well-Active	3 – 6	Database Search	IOC, VOC, SOC
72	Deep Injection Well-Active	3 – 6	Database Search	IOC, VOC, SOC
73	Deep Injection Well-Active	3 – 6	Database Search	IOC, VOC, SOC
74	Deep Injection Well-Active	3 – 6	Database Search	IOC, VOC, SOC
75	Deep Injection Well-Active	3 – 6	Database Search	IOC, VOC, SOC
76	Deep Injection Well-Active	3 – 6	Database Search	IOC, VOC, SOC
77	Deep Injection Well-Active	3 – 6	Database Search	IOC, VOC, SOC
78	SARA	3 – 6	Database Search	IOC
80, 83, 93, 102	LUST-Site Cleanup Completed , Impact: Unknown, UST-Open, Farm Supplies (Wholesale), SARA-FARM SUPPLIES	6 – 10	Database Search	IOC, VOC, SOC
81, 85	LUST-Site Cleanup Completed , Impact: Unknown, UST-Closed	6 – 10	Database Search	VOC, SOC
82	UST-Closed	6 – 10	Database Search	VOC, SOC
84	UST-Open	6 – 10	Database Search	VOC, SOC
86	Dairy	6 – 10	Database Search	IOC
87	Hay (Wholesale)	6 – 10	Database Search	IOC, VOC, SOC
88	Automobile Repairing & Service	6 – 10	Database Search	IOC, VOC, SOC
89	Truck-Repairing & Service	6 – 10	Database Search	IOC, VOC, SOC
90	Automobile Body-Repairing & Painting	6 – 10	Database Search	IOC, VOC, SOC
91	Automobile Body-Repairing & Painting	6 – 10	Database Search	IOC, VOC, SOC
92, 101	Oils-Fuel (Wholesale), SARA	6 – 10	Database Search	IOC, VOC, SOC
94	Wrecker Service	6 – 10	Database Search	IOC, VOC, SOC
95	Fertilizers-Manufacturers	6 – 10	Database Search	IOC, SOC
96	RCRA Site	6 – 10	Database Search	IOC, VOC, SOC
97	RCRA Site	6 – 10	Database Search	IOC, SOC
98	Deep Injection Well-Active	6 – 10	Database Search	IOC, VOC, SOC
99	Deep Injection Well-Active	6 – 10	Database Search	IOC, VOC, SOC
100	SARA-FERTILIZERS, MIXING ONLY	6 – 10	Database Search	IOC, SOC
	Highway 46	0 – 10	GIS Map	IOC, VOC, SOC, Microbes
	Union Pacific Railroad	0 – 10	GIS Map	IOC, VOC, SOC, Microbes
	Little Wood River	0 – 10	GIS Map	IOC, VOC, SOC, Microbes

[1] RCRA = Resource Conservation and Recovery Act, SARA = Superfund Amendments and Reauthorization Act, UST = underground storage tank, LUST = leaking underground storage tank

[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

FIGURE 3 - City of Gooding Delineation Map and Potential Contaminant Source Locations



PWS# 5240009
Senior Ave. Well

Table 2. Senior Avenue Well. Potential Contaminant Inventory.

Site	Description of Source[1]	TOT[2] Zone	Source of Information	Potential Contaminants[3]
1, 3, 10, 44	LUST-Site Cleanup Completed , Impact: Unknown, UST-Closed, State Government-National Security	0 – 3	Database Search	IOC, VOC, SOC
2, 9, 58, 83	LUST-Site Cleanup Completed , Impact: Unknown, UST-Open, Farm Supplies (Wholesale), SARA-Farm Supplies	0 – 3	Database Search	IOC, VOC, SOC
4, 13	LUST-Site Cleanup Completed , Impact: Unknown, UST-Closed	0 – 3	Database Search	VOC, SOC
5, 16	LUST-Site Cleanup Completed , Impact: Unknown, UST-Closed	0 – 3	Database Search	VOC, SOC
6	UST-Closed	0 – 3	Database Search	VOC, SOC
7	UST-Open	0 – 3	Database Search	VOC, SOC
8, 33	UST-Open, Automobile Repairing & Service	0 – 3	Database Search	IOC, VOC, SOC
11	UST-Open	0 – 3	Database Search	VOC, SOC
12	UST-Open	0 – 3	Database Search	VOC, SOC
14	UST-Closed	0 – 3	Database Search	VOC, SOC
15, 22	UST-Closed, Fire Departments	0 – 3	Database Search	IOC, VOC, SOC
17, 28, 31, 40	UST-Closed, Veterinarians	0 – 3	Database Search	IOC, VOC, SOC, Microbes
18, 64	UST-Closed, RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
19	UST-Closed	0 – 3	Database Search	VOC, SOC
20	Photographers-Portrait	0 – 3	Database Search	IOC, VOC
21	Grain-Dealers (Wholesale)	0 – 3	Database Search	IOC, SOC, Microbes
23	Hay (Wholesale)	0 – 3	Database Search	IOC, SOC, Microbes
24	Tire-Dealers-Retail	0 – 3	Database Search	VOC, SOC
25	Funeral Directors	0 – 3	Database Search	IOC, SOC
26	Storage-Household & Commercial	0 – 3	Database Search	IOC, VOC, SOC
27	Tractor-Dealers (Wholesale)	0 – 3	Database Search	VOC, SOC
29, 68	Cleaners, RCRA Site	0 – 3	Database Search	VOC
30	Hardware-Retail	0 – 3	Database Search	IOC, VOC, SOC
32	Automobile Dealers-Used Cars	0 – 3	Database Search	VOC, SOC
34	Newspapers (Publishers)	0 – 3	Database Search	IOC, VOC
35	Farming Service	0 – 3	Database Search	IOC, SOC, Microbes
36	Automobile Radiator-Repairing	0 – 3	Database Search	IOC, VOC, SOC
37	Fertilizers (Wholesale)	0 – 3	Database Search	IOC, SOC, Microbes
38	Automobile Repairing & Service	0 – 3	Database Search	IOC, VOC, SOC
39	Motorcycles & Motor Scooters-Dealer	0 – 3	Database Search	VOC, SOC
41	Electric Companies	0 – 3	Database Search	IOC, VOC
42	Truck-Repairing & Service	0 – 3	Database Search	IOC, VOC, SOC
43	Livestock-Dealers (Wholesale)	0 – 3	Database Search	IOC, Microbes
45	Automobile Parts & Supplies-Retail	0 – 3	Database Search	VOC, SOC
46	Mufflers & Exhaust Systems-Engine	0 – 3	Database Search	IOC, VOC, SOC
47	Automobile Body-Repairing & Painting	0 – 3	Database Search	IOC, VOC, SOC
48	Printers	0 – 3	Database Search	IOC, VOC
49	Automobile Body-Repairing & Painting	0 – 3	Database Search	IOC, VOC, SOC
50	Demolition Contractors	0 – 3	Database Search	IOC, VOC, SOC
51	Automobile Body-Repairing & Painting	0 – 3	Database Search	IOC, VOC, SOC
52, 81	Oils-Fuel (Wholesale), SARA	0 – 3	Database Search	IOC, VOC, SOC
53	Machine Shops	0 – 3	Database Search	IOC, VOC, SOC
54	General Contractors	0 – 3	Database Search	IOC, VOC, SOC
55	Lawn & Garden Equip & Supplies-Retail	0 – 3	Database Search	IOC, VOC, SOC
56	Commercial Printing NEC	0 – 3	Database Search	IOC, VOC
57	Automobile Repairing & Service	0 – 3	Database Search	IOC, VOC, SOC
59	Hay (Wholesale)	0 – 3	Database Search	IOC, VOC, SOC
60	Automobile Parts & Supplies-Retail	0 – 3	Database Search	VOC, SOC
61	Automobile Parts & Supplies-Retail	0 – 3	Database Search	VOC, SOC
62	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
63	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
65	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
66	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
67	RCRA Site	0 – 3	Database Search	IOC, SOC

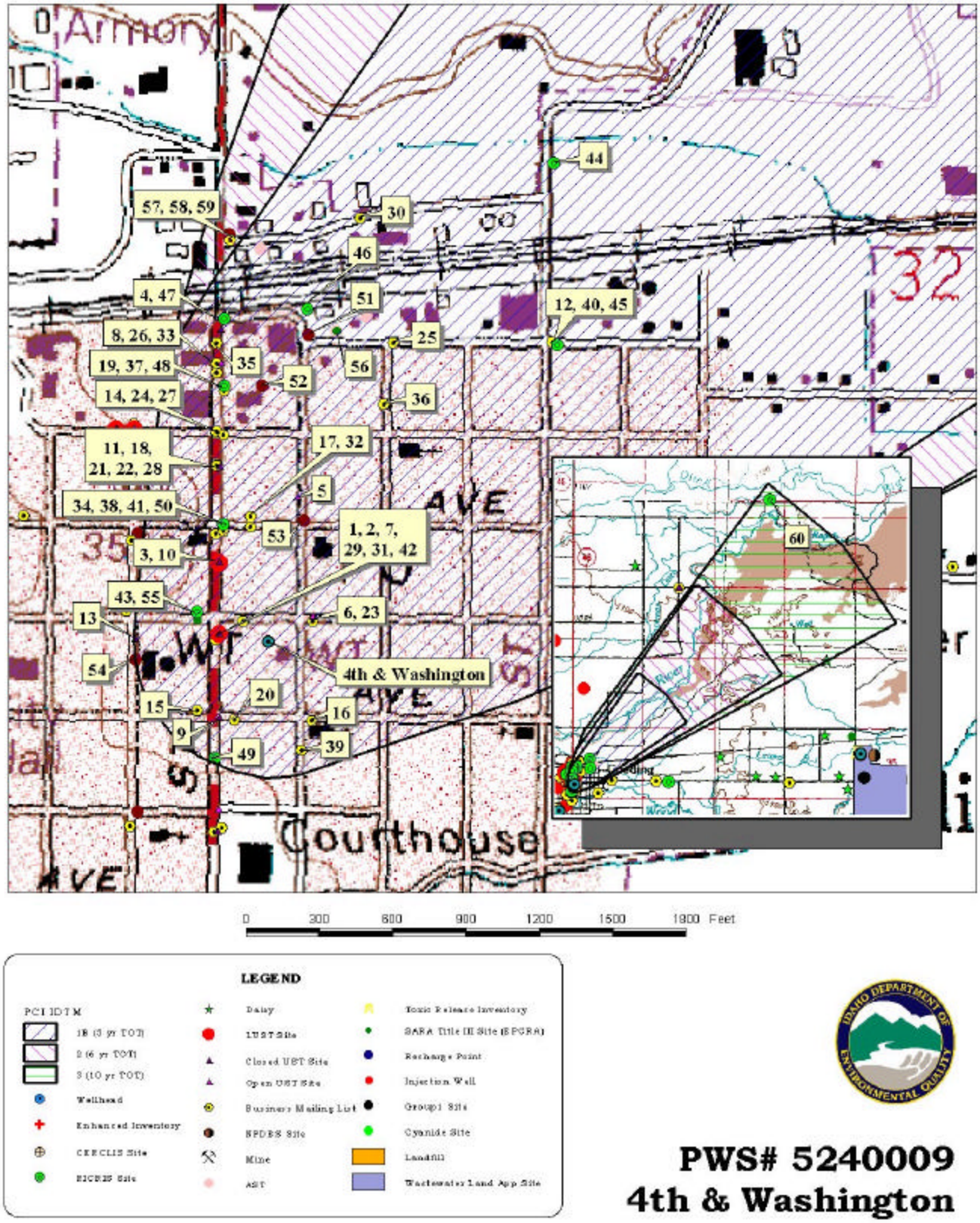
Site	Description of Source[1]	TOT[2] Zone	Source of Information	Potential Contaminants[3]
69	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
70	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
71	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
72	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
73	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
74	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
75	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
76	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
77	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
78	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
79	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
80	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
82	SARA	0 – 3	Database Search	IOC
84	SARA	0 – 3	Database Search	IOC, VOC, SOC
85	Dairy 201-500 cows	6 – 10	Database Search	IOC
	Highway 46	0 – 10	GIS Map	IOC, VOC, SOC, Microbes
	Union Pacific Railroad	0 – 10	GIS Map	IOC, VOC, SOC, Microbes
	Little Wood River	0 – 10	GIS Map	IOC, VOC, SOC, Microbes

[1] RCRA = Resource Conservation and Recovery Act, SARA = Superfund Amendments and Reauthorization Act, UST = underground storage tank, LUST = leaking underground storage tank

[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

FIGURE 4 - City of Gooding Delineation Map and Potential Contaminant Source Locations



PWS# 5240009
4th & Washington

Table 3. 4th Avenue Well. Potential Contaminant Inventory.

Site	Source Description	TOT Zone	Source of Information	Potential Contaminants
1, 2, 7, 31	LUST-Site Cleanup Completed , Impact: Unknown, UST-Closed, State Government-National Security	0 – 3	Database Search	IOC, VOC, SOC
3, 10	LUST-Site Cleanup Completed , Impact: Unknown, UST-Closed	0 – 3	Database Search	VOC, SOC
4	UST-Closed	0 – 3	Database Search	VOC, SOC
5	UST-Open	0 – 3	Database Search	VOC, SOC
6, 23	UST-Open, Automobile Repairing & Service	0 – 3	Database Search	IOC, VOC, SOC
8	UST-Open	0 – 3	Database Search	VOC, SOC
9	UST-Closed	0 – 3	Database Search	VOC, SOC
11, 18, 21, 28	UST-Closed, Veterinarians	0 – 3	Database Search	IOC, VOC, SOC, Microbes
12, 45	UST-Closed, RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
13	UST-Closed	0 – 3	Database Search	VOC, SOC
14	Photographers-Portrait	0 – 3	Database Search	IOC, VOC
15	Grain-Dealers (Wholesale)	0 – 3	Database Search	IOC, SOC, Microbes
16	Storage-Household & Commercial	0 – 3	Database Search	IOC, VOC, SOC
17	Tractor-Dealers (Wholesale)	0 – 3	Database Search	VOC, SOC
19, 48	Cleaners, RCRA Site	0 – 3	Database Search	VOC
20	Hardware-Retail	0 – 3	Database Search	IOC, VOC, SOC
22	Automobile Dealers-Used Cars	0 – 3	Database Search	VOC, SOC
24	Newspapers (Publishers)	0 – 3	Database Search	IOC, VOC
25	Fertilizers (Wholesale)	0 – 3	Database Search	IOC, SOC
26	Automobile Repairing & Service	0 – 3	Database Search	IOC, VOC, SOC
27	Motorcycles & Motor Scooters-Dealer	0 – 3	Database Search	VOC, SOC
29	Electric Companies	0 – 3	Database Search	IOC, VOC
30	Truck-Repairing & Service	0 – 3	Database Search	IOC, VOC, SOC
32	Automobile Parts & Supplies-Retail	0 – 3	Database Search	VOC, SOC
33	Automobile Body-Repairing & Painting	0 – 3	Database Search	IOC, VOC, SOC
34	Demolition Contractors	0 – 3	Database Search	IOC, VOC, SOC
35	Automobile Body-Repairing & Painting	0 – 3	Database Search	IOC, VOC, SOC
36	Machine Shops	0 – 3	Database Search	IOC, VOC, SOC
37	Lawn & Garden Equip & Supplies-Retail	0 – 3	Database Search	IOC, VOC, SOC
38	Commercial Printing NEC	0 – 3	Database Search	IOC, VOC
39	Automobile Repairing & Service	0 – 3	Database Search	IOC, VOC, SOC
40	Hay (Wholesale)	0 – 3	Database Search	IOC, SOC
41	Automobile Parts & Supplies-Retail	0 – 3	Database Search	VOC, SOC
42	Automobile Parts & Supplies-Retail	0 – 3	Database Search	VOC, SOC
43	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
44	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
46	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
47	RCRA Site	0 – 3	Database Search	IOC, SOC, Microbes
49	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
50	RCRA Site	0 – 3	Database Search	IOC, VOC, SOC
51	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
52	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
53	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
54	Deep Injection Well-Active	0 – 3	Database Search	IOC, VOC, SOC
55	SARA	0 – 3	Database Search	VOC
56	SARA	0 – 3	Database Search	IOC, VOC, SOC
57, 59	Oils-Fuel (Wholesale), SARA	3 – 6	Database Search	IOC, VOC, SOC
58	Deep Injection Well-Active	3 – 6	Database Search	IOC, VOC, SOC
60	RCRA Site	6 – 10	Database Search	IOC, VOC, SOC
	Highway 46	0 – 10	GIS Map	IOC, VOC, SOC, Microbes
	Union Pacific Railroad	0 – 10	GIS Map	IOC, VOC, SOC, Microbes
	Little Wood River	0 – 10	GIS Map	IOC, VOC, SOC, Microbes

[1] RCRA = Resource Conservation and Recovery Act, SARA = Superfund Amendments and Reauthorization Act, UST = underground storage tank, LUST = leaking underground storage tank

[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Appendix B

City of Gooding Susceptibility Analysis Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : GOODING CITY OF Well# : 13TH & NEVADA

Public Water System Number 5240009 1/3/2002 7:27:55 AM

1. System Construction		SCORE
Drill Date	1/16/1962	
Driller Log Available	YES	
Sanitary Survey (if yes, indicate date of last survey)	YES	1995
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	YES	0
	Total System Construction Score	4

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	YES	0
Vadose zone composed of gravel, fractured rock or unknown	YES	1
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
	Total Hydrologic Score	4

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	URBAN/COMMERCIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2

Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	25	25	27	8
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8
Sources of Class II or III leacheable contaminants or	YES	25	25	27	
4 Points Maximum		4	4	4	
Zone 1B contains or intercepts a Group 1 Area	YES	0	0	2	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		14	14	16	10

Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	25 to 50% Irrigated Agricultural Land	1	1	1	
Potential Contaminant Source / Land Use Score - Zone II		4	4	4	0

Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		2	2	2	0
Cumulative Potential Contaminant / Land Use Score		22	22	24	12
4. Final Susceptibility Source Score		12	12	13	12
5. Final Well Ranking		Moderate	Moderate	High	Moderate

Ground Water Susceptibility Report Public Water System Name : GOODING CITY OF Well# : SENIOR AVE WELL

Public Water System Number 5240009 1/3/2002 7:28:32 AM

1. System Construction		SCORE				
Drill Date	2/25/1971					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	1995				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	YES	0				
Casing and annular seal extend to low permeability unit	NO	2				
Highest production 100 feet below static water level	NO	1				
Well located outside the 100 year flood plain	YES	0				
Total System Construction Score		4				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	YES	0				
Vadose zone composed of gravel, fractured rock or unknown	YES	1				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	NO	2				
Total Hydrologic Score		4				
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	URBAN/COMMERCIAL		2	2	2	2
Farm chemical use high	NO		0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES		NO	NO	YES	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A			2	2	2	2
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES		55	63	62	9
(Score = # Sources X 2) 8 Points Maximum			8	8	8	8
Sources of Class II or III leacheable contaminants or	YES		55	63	62	
4 Points Maximum			4	4	4	
Zone 1B contains or intercepts a Group 1 Area	YES		0	0	2	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land		2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B			14	14	16	10
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	YES		2	2	2	
Sources of Class II or III leacheable contaminants or	YES		1	1	1	
Land Use Zone II	25 to 50% Irrigated Agricultural Land		1	1	1	
Potential Contaminant Source / Land Use Score - Zone II			4	4	4	0
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES		1	1	1	
Sources of Class II or III leacheable contaminants or	YES		1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	NO		0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III			2	2	2	0
Cumulative Potential Contaminant / Land Use Score			22	22	24	12
4. Final Susceptibility Source Score			12	12	13	12
5. Final Well Ranking			Moderate	High	High	Moderate

Ground Water Susceptibility Report Public Water System Name : GOODING CITY OF Well# : 4TH & WASHINGTO

Public Water System Number 5240009 1/3/2002 7:28:16 AM

1. System Construction		SCORE				
Drill Date	11/13/1996					
Driller Log Available	NO					
Sanitary Survey (if yes, indicate date of last survey)	NO	0				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	NO	1				
Casing and annular seal extend to low permeability unit	NO	2				
Highest production 100 feet below static water level	NO	1				
Well located outside the 100 year flood plain	NO	1				
Total System Construction Score		6				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	YES	0				
Vadose zone composed of gravel, fractured rock or unknown	YES	1				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	NO	2				
Total Hydrologic Score		4				
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score	
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2	
Farm chemical use high	YES	2	0	0		
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO	
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	2	2	
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES	35	44	42	6	
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8	
Sources of Class II or III leacheable contaminants or	YES	37	44	42		
4 Points Maximum		4	4	4		
Zone 1B contains or intercepts a Group 1 Area	YES	0	0	2	0	
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2	
Total Potential Contaminant Source / Land Use Score - Zone 1B		14	14	16	10	
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	YES	2	2	2		
Sources of Class II or III leacheable contaminants or	YES	1	1	1		
Land Use Zone II	25 to 50% Irrigated Agricultural Land	1	1	1		
Potential Contaminant Source / Land Use Score - Zone II		4	4	4	0	
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES	1	1	1		
Sources of Class II or III leacheable contaminants or	YES	1	1	1		
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0		
Total Potential Contaminant Source / Land Use Score - Zone III		2	2	2	0	
Cumulative Potential Contaminant / Land Use Score		24	22	24	12	
4. Final Susceptibility Source Score		15	14	15	14	
5. Final Well Ranking		High	High	High	High	